Bison Oil Well Cementing
Tail & Lead

Date: 1/19/2017
Invoice # 200022
API#
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.
Well Name: holliday federal lc 23-780

County: Weld
State: Colorado
Sec: 20
Twp: 9n
Range: 58w

Consultant: stetson
Rig Name & Number: H&P 524
Distance To Location: 65
Units On Location: 4028/4034
Time Requested: 430 pm
Time Arrived On Location: 430 pm
Time Left Location: 12:45pm

WELL DATA

Casing Size (in) :	_9.625
Casing Weight (lb) :	36
Casing Depth (ft.) :	1,874
Total Depth (ft) :	1919
Open Hole Diameter (in) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.6
Shoe Joint Length (ft) :	46
Landing Joint (ft) :	35
Sacks of Tail Requested	100
HOC Tail (ft):	0

One or the other, cannot have quantity in both

Max Rate:
Max Pressure:

Cement Data

Lead

Cement Name: fn3 gel calcium

Cement Density (lb/gal) :	13.5
Cement Yield (cuft) :	1.7
Gallons Per Sack	9.00
% Excess	15%

Tail

Cement Name:	bfn 3
Cement Density (lb/gal) :	15.2
Cement Yield (cuft) :	1.27
Gallons Per Sack:	5.89
% Excess:	0%
Fluid Ahead (bbls)	144.0
H20 Wash Up (bbls)	20.0

Spacer Ahead Makeup

Casing ID 8.921 Casing Grade J-55 only used

Lead Calculated Results

HOC of Lead	1540.00 ft
Casing Depth - HOC Tail	
Volume of Lead Cement	752.64 cuft
HOC of Lead X Open Hole Ann	
Volume of Conductor	65.76 cuft
(Conductor ID Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	
Total Volume of Lead Cement	818.40 cuft
(cuft of Lead Cement) + (Cuft of Conductor)	
bbls of Lead Cement	167.62 bbls
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	
Sacks of Lead Cement	553.63 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	
bbls of Lead Mix Water	118.63 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42	
Displacement	144.01 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	
Total Water Needed:	440.68 bbls

Tail Calculated Results

Tail Cement Volume In Ann	127.00 cuft
(HOC Tail) X (OH Ann)	
Total Volume of Tail Cement	107.03 Cuft
(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	
bbls of Tail Cement	22.62 bbls
(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)	
HOC Tail	219.00 ft
(Tail Cement Volume) ÷ (OH Ann)	
Sacks of Tail Cement	100.00 sk
(Total Volume of Tail Cement) ÷ (Cement Yield)	
bbls of Tail Mix Water	14.02 bbls
(Sacks of Tail Cement X Gallons Per Sack) ÷ 42	
Pressure of cement in annulus	
Hydrostatic Pressure	585.23 PSI
Collapse PSI:	2020.00 psi
Burst PSI:	3520.00 psi

X _____
Authorization To Proceed

Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.

Bison Oil Well Cementing
Two Cement Surface Pipe

Customer	Noble Energy Inc.
Well Name	holliday federal lc 23-780

Date	1/19/2017
INVOICE #	200022
LOCATION	Weld
FOREMAN	Kirk Kallhoff

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	118.6	430 pm	arived on location	rig was cicr w/drill pipe on bottom			
Lead % Excess	15%	845 pm	rig up				
Lead Sacks	553	917 pm	jsa				
		937 pm	test lines	test lines to 1300 psi	1	2	1300
		939 pm	bbls ahead	50 bbls h2o dye in 2nd 10	5	50	120
Tail mixed bbls	14	955 pm	m&p lead cement	553 sks 167.6 bbls slury	5	167.6	200
Tail % Excess	0%	1022 pm	m&p tail cement	100 sks 22.6 bbls slury	5	22.6	200
Tail Sacks	100	1027 pm	shutdown				
		1032 pm	drop plug				
Total Sacks	653	1032 pm	displace	rig to displace 144 bbls OBM		144	
Water Temp	55	1056 pm	bump plug	lift psi 470	1.5	144	880
bbl Returns	33	1057 pm	casing test	rig to test			1500
		1127 pm	release psi				0
Notes:		1215 am	rig down				
		1245 am	leave location				
				monitered well no top off			

X _____
Work Preformed

X WSS
Title

X 1-20-17
Date